WHAT IS CLAIMED IS:

1. A peptide that targets a tumor cell, wherein said peptide is internalized by said tumor cell.

2. The peptide of claim 1, comprising SEQ ID NO:1.

3. The peptide of claim 1, consisting of SEQ ID NO:1.

4. A DNA segment encoding SEQ ID NO:1.

5. The DNA segment of claim 4, comprising a nucleic acid that encodes SEQ ID NO:1.

6. The DNA segment of claim 4, further defined as a recombinant vector.

7. A composition comprising:

a) a drug; and

b) a peptide that targets a tumor cell, wherein said peptide is internalized by said tumor cell.

8. The composition of claim 7, wherein said peptide comprises SEQ ID NO:1.

9. The composition of claim 7, wherein said peptide consists of SEQ ID NO:1.

10. The composition of claim 7, wherein said drug is a chemotherapeutic agent.

11. The composition of claim 7, wherein said drug is a cytotoxic agent.

12. The composition of claim 7, wherein said drug is an apoptotic agent.

13. The composition of claim 7, wherein said drug is a DNA-damaging agent.

14. The composition of claim 7, wherein said drug is Taxol.

15. The composition of claim 7, wherein said drug is cisplatin (CDDP), carboplatin, procarbazine, mechlorethamine, cyclophosphamide, ifosfamide, melphalan, chlorambucil, bisulfan, nitrosurea, dactinomycin, daunorubicin, doxorubicin, bleomycin, plicomycin, mitomycin, etoposide (VP16), tamoxifen, transplatinum, 5-fluorouracil, vincristin, vinblastin or methotrexate.

16. A method for killing a tumor cell comprising contacting said tumor cell with a pharmaceutically acceptable composition comprising:

a) a drug; and

b) a peptide that targets said tumor cell, wherein said peptide is internalized by said tumor cell.

17. The method of claim 16, wherein said peptide comprises SEQ ID NO:1.

18. The method of claim 16, wherein said drug is conjugated to said peptide.

19. The method of claim 16, wherein said tumor cell is selected from the group consisting of squamous cell carcinoma, head and neck cancer and breast cancer.

20. The method of claim 16, wherein said tumor cell is a human head and neck cancer cell.

21. The method of claim 16, wherein said human head and neck cancer cell is an oral cavity cell, a pharynx cell, a throat cell, a paranasal sinus cell, a nasal cavity cell, a larynx cell, a thyroid cell, a parathyroid cell, a salivary gland cell, a skin cell of the face, a skin cell of the neck or a cervical lymph node cell.

22. The method of claim 16, wherein said tumor cell is a solid tumor cell.

23. The method of claim 22, wherein said solid tumor cell comprises a breast cancer cell.

24. The method of claim 16, wherein said contacting is by intravenous administration, intratumoral administration, subcutaneous administration, intraperitoneal administration or topical administration.

25. The method of claim 16, wherein said contacting is by local, regional or systemic administration.

26. The method of claim 16, wherein said tumor cell is in a patient.

27. A method for detecting cancer comprising:

a) obtaining a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell;

b) conjugating a detectable label to said peptide;

c) administering the conjugated peptide and label to a patient; and

d) detecting binding of said conjugate to tumor cells by suitable detection means.

28. The method of claim 27, wherein said binding further comprises uptake by said tumor cells.

29. The method of claim 27, wherein said label is a radionucleotide, a fluor or a spin label.

30. The method of claim 27, wherein said administering is by intravenous injection, intratumoral injection, subcutaneous injection, intraperitoneal injection or topical administration.

31. The method of claim 27, wherein said administering is by local, regional or systemic administering.

32. The method of claim 27, wherein said detection is by magnetic resonance imaging, x-ray imaging or computerized emission tomography.

33. A method for detecting a tumor *in vitro* comprising:

a) obtaining a peptide comprising SEQ ID NO:1, wherein said peptide targets the tumor;

b) conjugating a detectable label to said peptide;

c) contacting said conjugated peptide and label to the tumor-containing sample; and

d) detecting binding of said conjugate to the tumor by suitable detection means.

34. The method of claim 33, wherein said binding further comprises uptake by cells of said tumor.

35. The method of claim 33, wherein said label is a radionucleotide, a fluor or a spin label.

36. The method of claim 33, wherein said detection is by nuclear magnetic resonance imaging, x-ray imaging, computerized emission tomography or positron emission tomography.

37. A tumor-detection kit comprising, in suitable container means, a pharmaceutical composition of a peptide comprising SEQ ID NO:1.

38. A tumor-detection kit comprising, in suitable container means, a pharmaceutical composition of a peptide comprising SEQ ID NO:1 bound to a detectable label, wherein said peptide targets a tumor cell.

39. A tumor-detection kit comprising, in suitable container means:

a) a pharmaceutical composition of a peptide comprising SEQ ID NO:1 bound to a detectable label, wherein said peptide targets a tumor cell; and

b) a suitable means for detection.

40. The kit of claim 38, wherein said detectable label is detectable by non-invasive means.

41. The kit of claim 38, wherein said detectable label is a spin-labeled molecule.

42. The kit of claim 38, wherein said detectable label is a radioactive isotope.

43. The kit of claim 39, wherein said detection means is by nuclear magnetic resonance imaging, x-ray imaging, computerized emission tomography or positron emission tomography.

44. A tumor-imaging kit comprising, in a suitable container means, an effective amount of a pharmaceutically acceptable formulation comprising a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell.

45. A tumor-imaging kit comprising, in a suitable container means, an effective amount of a pharmaceutically acceptable formulation comprising a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell and wherein said peptide is bound to a detectable label.

46. A tumor-imaging kit comprising, in suitable container means, an effective amount of a pharmaceutically acceptable formulation comprising:

a) a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell and wherein said peptide is further bound to a detectable label; and

b) a suitable means for detecting said detectable label.

47. The kit of claim 45, wherein said detectable label is imaged by non-invasive means.

48. The kit of claim 45, wherein said detectable label is a spin-labeled molecule.

49. The kit of claim 45, wherein said detectable label is a radioactive isotope.

50. The kit of claim 46, wherein said detection means is by nuclear magnetic resonance imaging, x-ray imaging, computerized emission tomography or positron emission tomography.

51. A method for killing a tumor cell comprising administering to a patient:

a) radiotherapy; and

b) a pharmaceutically acceptable composition comprising an anti-tumor compound conjugated to a peptide that targets said tumor cell, wherein said peptide is internalized by said tumor cell.

52. The method of claim 51, wherein said peptide comprises SEQ ID NO:1.

53. The method of claim 51, wherein said radiotherapy is administered whole body, local or regional.

54. The method of claim 51, wherein said radiotherapy is radioisotopic irradiation, γ-irradiation, X-ray irradiation, UV-irradiation, microwave irradiation or electronic irradiation.

55. The method of claim 51, wherein said patient is administered about 40 to about 100 Gy radiation.

56. The method of claim 51, wherein said patient is administered about 55 to about 65 Gy radiation.

57. The method of claim 51, wherein said patient is administered about 62 Gy radiation.

58. The method of claim 51, wherein said tumor cell is selected from the group consisting of squamous cell carcinomas, head and neck cancers and breast cancers.

59. A method for killing a tumor cell comprising administering to a patient:

a) chemotherapy; and

b) a pharmaceutically acceptable composition comprising an anti-tumor compound conjugated to a peptide that targets said tumor cell, wherein said peptide is internalized by said tumor cell.

60. A method for killing a tumor cell comprising administering to a patient:

a) chemotherapy; and

b) a pharmaceutically acceptable composition comprising a liposome linked to a peptide that targets said tumor cell, wherein said liposome comprises an anti-tumor compound, and wherein said peptide is internalized by said tumor cell.

61. A method for killing a tumor cell comprising administering to a patient:

a) surgery; and

b) a pharmaceutically acceptable composition comprising an anti-tumor compound conjugated to a peptide that targets said tumor cell, wherein said peptide is internalized by said tumor cell.

62. A method for killing a tumor cell comprising administering to a patient:

a) gene therapy; and

b) a pharmaceutically acceptable composition comprising an anti-tumor compound conjugated to a peptide that targets said tumor cell, wherein said peptide is internalized by said tumor cell.

63. The method of claim 62, wherein said gene therapy is directed to a nucleic acid sequence selected from the group consisting of *ras* ; *myc, raf, erb, src, fms, jun, trk, ret, gsp, hst, bcl abl,* Rb, CFTR, p16, p21, p27, p53, p57, p73, C-CAM, APC, CTS-1, zac1, scFV *ras*, DCC, NF-1, NF-2, WT-1, MEN-I, MEN-II, BRCA1, VHL, MMAC1, FCC, MCC, BRCA2, IL-1,

IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11 IL-12, GM-CSF G-CSF and thymidine kinase.

64. A tumor-treating kit in suitable container means comprising a therapeutically effective amount of a pharmaceutically acceptable formulation comprising a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell.

65. A tumor-treating kit in suitable container means comprising a therapeutically effective amount of a pharmaceutically acceptable formulation comprising:

a) a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell

b) an anti-tumor compound.

66. The tumor-treating kit of Claim 65, wherein said anti-tumor compound is Taxol.

67. The tumor-treating kit of Claim 65, wherein said anti-tumor compound is selected from the group consisting of cisplatin (CDDP), carboplatin, procarbazine, mechlorethamine, cyclophosphamide, ifosfamide, melphalan, chlorambucil, bisulfan, nitrosurea, dactinomycin, daunorubicin, doxorubicin, bleomycin, plicomycin, mitomycin, etoposide (VP16), tamoxifen, transplatinum, 5-fluorouracil, vincristin, vinblastin and methotrexate.

68. A composition comprising:

a) a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell; and

b) a vector comprising a composition for gene therapy.

69. The composition of Claim 68, wherein said vector is selected from the group consisting of a protein, a peptide, a liposome, a lipid, a nucleic acid and a combination thereof.

70. The composition of Claim 68, wherein said composition for gene therapy comprises a nucleic acid.

71. The composition of Claim 68, wherein said composition for gene therapy comprises a p53 nucleic acid.

72. The composition of Claim 68, wherein said composition for gene therapy comprises a nucleic acid selected from the group consisting of *ras, myc, raf, erb, src, fms, jun, trk, ret, gsp, hst, bcl abl,* Rb, CFTR, p16, p21, p27, p53, p57, p73, C-CAM, APC, CTS-1, zac1, scFV *ras,* DCC, NF-1, NF-2, WT-1, MEN-I, MEN-II, BRCA1, VHL, MMAC1, FCC, MCC, BRCA2, IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11 IL-12, GM-CSF G-CSF and thymidine kinase.

73. A method to treat an organism for cancer comprising contacting said organism with a therapeutically effective amount of a pharmaceutically acceptable composition comprising:

a) a peptide comprising SEQ ID NO:1, wherein said peptide targets a tumor cell; and
b) an antitumor compound.

74. The method of Claim 73, wherein said antitumor compound is conjugated to said peptide.

75. The method of Claim 73, wherein said antitumor compound is Taxol.

76. The method of Claim 73, wherein said antitumor compound is selected from the group consisting of cisplatin (CDDP), carboplatin, procarbazine, mechlorethamine, cyclophosphamide, ifosfamide, melphalan, chlorambucil, bisulfan, nitrosurea, dactinomycin, daunorubicin, doxorubicin, bleomycin, plicomycin, mitomycin, etoposide (VP16), tamoxifen, transplatinum, 5-fluorouracil, vincristin, vinblastin and methotrexate.

77. The method of Claim 73, wherein said cancer is selected from the group consisting of squamous cell carcinomas, head and neck cancers and breast cancers.

78. A method for the isolation of an internalizing peptide comprising the steps of:

(1) obtaining a peptide library;

(2) individually contacting peptides of said library with members of a cell population; and

(3) assaying for endocytosis of said peptides by said members of said cell population.

79. The method of Claim 78, wherein said peptide library is a random peptide-display library.

80. The method of Claim 79, wherein said peptide library is a M13 single-stranded bacteriophage-based random peptide-display library.

81. The method of Claim 78, wherein said cell is a cancer cell.

82. A method for detecting cancer comprising the steps of:

(1) obtaining an internalizing peptide;

(2) conjugating a detectable label to said peptide;

(3) administering the conjugated peptide and label to an organism; and

(4) detecting binding of said conjugate to cancer cells by suitable detection means.

83. A method for detecting cancer comprising the steps of:

(1) obtaining a peptide library;

(2) individually contacting peptides of said library with members of a cell population;

(3) assaying for endocytosis of said peptides by said members of said cell population to identify an internalizing peptide;

(4) conjugating a detectable label to said peptide;

(5) administering the conjugated peptide and label to an organism; and

(6) detecting binding of said conjugate to a cell by suitable detection means.

84. A method for killing a cancer cell comprising the steps of:

(1) obtaining a peptide library;

(2) individually contacting peptides of said library with members of a cell population;

(3) assaying for endocytosis of said peptides by said members of said cell population to identify an internalizing peptide;

(4) conjugating a drug to said peptide; and

(5) administering the conjugated peptide and drug to an organism.

85. A method for killing a cancer cell comprising the steps of:

(1) obtaining a peptide library;

(2) individually contacting peptides of said library with members of a cell population;

(3) assaying for endocytosis of said peptides by said members of said cell population to identify an internalizing peptide;

(4) conjugating a composition for gene therapy to said peptide; and

(5) administering the conjugated peptide and gene therapy composition to an organism.